Students’ Perceptions of Teacher Feedback and Physical Competence in Physical Education Classes: Gender Effects

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Feedback is considered a critical teaching function, and researchers in sport pedagogy have shown interest in verifying its importance in physical education. Many observational studies have found that boys receive more attention and feedback, particularly praise, criticism, and technical information, than girls. Nevertheless, little is known about students’ perceptions of teacher–student interactions. The aim of this study was to investigate whether students’ perceptions of teacher feedback were gender differentiated in physical education, as well as to determine how perceived feedback is related to students’ perceptions of competence. French high school students (N = 450: 200 boys, 250 girls) completed questionnaires assessing their perceptions of their teachers’ feedback and their perceptions of competence. Results indicated gender differences in the set of variables. Furthermore, the influence of teacher feedback on girls’ perceptions of competence was strong, whereas little relationship was found for boys. These findings are then discussed in terms of teaching effectiveness.

Key words: French high school students, student–teacher interactions, perceived competence

The most important function in contemporary physical education in France is to prepare children for lifetime physical activity (French Physical Education

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Programmes, 2000). Regular participation in physical activity for young people can contribute to the enhancement of physical, psychological, and social well-being (Biddle, Sallis, & Cavill, 1998). Teachers play many important roles in helping students in their classes to learn. One of the teacher’s functions is to monitor students’ progress and provide feedback. By providing appropriate feedback to students, teachers hope that performance will be modified and students will learn the material. The general purpose of this study was to explore male and female students’ perceptions of their physical education teachers’ feedback patterns and to determine the relationship between the various types of feedback and the students’ perceptions of ability in physical education.

Feedback in Physical Education

Given the significance of feedback in the teaching–learning process (Cloes, Premuzak, & Piéron, 1993; Silverman, 1994), the role of feedback provided by physical education teachers has received a considerable amount of attention. A variety of feedback characteristics have been examined, such as the absolute and relative frequency of feedback, the timing of feedback, and the content of feedback (see Magill, 1993), and many researchers have developed multidimensional observation systems to assess these different dimensions of feedback (e.g., Cheffers & Mancini, 1978). Based on these observational systems, a number of studies reveal that teachers’ feedback is an effective means of increasing student achievement in physical education; the findings, however, are sometimes inconsistent and do not always support feedback as an essential element of learning (for review, see Lee, Keh, & Magill, 1993).

One possible reason for the lack of effect found in these observational studies is that students’ perceptions of their teachers’ feedback typically have not been considered. Students’ perceptions of instruction do serve as mediating links between teacher behavior and student learning and performance (Doyle, 1977; Lee et al., 1993). Furthermore, there is not always congruence between what a teacher actually says and how different students perceive and interpret the information. Martinek (1988), for example, conducted student interviews to determine whether their perceptions of the teachers’ feedback were consistent with coded dyadic interaction. Results showed differences between observed and perceived feedback intended as praise, to correct skills, and to correct behavior. Similar findings have been reported in sport settings with coaches and their athletes (Smoll & Smith, 2002). Although there are clearly cases in which students and teacher have similar perceptions (Tjeerdsma, 1997), focusing on students’ thoughts and feelings might significantly enhance our understanding of the teaching–learning process and how various instructional behaviors, such as feedback, affect students’ achievement-related outcomes (Lee & Solmon, 1992).

Feedback and Perceptions of Competence

Research and theory have highlighted the critical function of perceived competence on students’ achievement-related behaviors, cognitions, and affective responses (Harter, 1998). Perceived competence is defined as how an individual perceives her or his own ability to perform a specific task or a role-appropriate
behavior. Given the importance of perceived competence, a key question involves asking about the sources of information individuals use to evaluate or determine their level of ability. One important factor is performance-related feedback from parents, teachers, and coaches (Horn & Amorose, 1998). What adults say or do not say in response to a child or an adolescent’s performance attempt can positively or negatively influence their perceptions of competence.

Although specific research examining how various types of feedback provided by physical education teachers are related to students’ perceived competence is lacking, considerable research has been done in the area of coaching (Horn, 2002; Smoll & Smith, 2002). Despite some contextual differences between organized sport participation and physical education classes, the content, purpose, and function of performance-related feedback from coaches and teachers are very similar. As such, the literature on coaching (Chelladurai, 1993; Horn; Smoll & Smith) might begin to help us understand the types of feedback that are more or less effective for facilitating positive perceptions of ability in physical education.

**Perceived Coaching Feedback and Perceptions of Competence**

Consistent with the majority of social cognitive theories describing the influence of significant others on various achievement-related outcomes (e.g., Harter, 1998; Roberts, 2001), the majority of the coaching feedback research has adopted the perspective that athletes’ perceptions of coach’s behavior have a direct influence on the athletes’ psychological responses (Horn, 2002). For instance, the research based on Smoll and Smith’s Mediational Model of Leadership has found strong support for the influence of perceived coaching behavior on athletes’ experiences in sport (Smoll & Smith, 2002). Their line of research began with the development of a coding system based on extensive observations of coaches’ behaviors in practice and game settings (Smith, Smoll, & Hunt, 1977). According to their classification system, known as the Coaching Behavior Assessment System (CBAS), coaches respond to athletes’ desirable performances with either reinforcement or nonreinforcement and react to errors or mistakes with encouragement, technical instruction, punishment, punitive technical instruction, or by ignoring the mistake. Using this system to assess observed and perceived coaching feedback, researchers have identified a pattern of behaviors related to positive psychological outcomes (see Horn; Smoll & Smith). In general, these studies have found that athletes whose coaches provide higher frequencies of positive reinforcement after performance successes, as well as encouragement and technical instruction after mistakes, reported more positive sport experiences. Other studies (Allen & Howe, 1998; Amorose & Horn, 2000; Black & Weiss, 1992), with 10- to 20-year-old athletes, have used slightly different measures of perceived coaching feedback (e.g., the Coaching Feedback Questionnaire; CFQ); the general pattern of results, however, has been relatively consistent. Specifically, athletes who perceived receiving more positive and informational feedback, less criticism or punishment, and perceived that coaches ignored their performances less often tended to report more positive achievement-related outcomes, including higher levels of perceived competence. Given that physical education teachers’ performance-related responses are similar in nature to athletic coaches’, it would be informative to determine whether this
same pattern of “effective” feedback found in sport leads to positive experiences for physical education students as well.

**Feedback and Student’s Gender**

Another important consideration when attempting to understand feedback in physical education involves the gender of the student. Clear evidence indicates that teachers tend to interact differently with male and female students in elementary school (Bailey, 1993), junior high (Heller & Parsons, 1981), and high school (Smith, 1992) classrooms. Generally, male students receive more attention in class from teachers than do female students (Duffy, Warren, & Walsh, 2001). Furthermore, the type of attention boys receive varies. Drudy and Úi Chatháin (2002), for instance, demonstrated that boys received more praise, acceptance, and questions from their teachers compared with girls. Similar results have been reported in physical education classrooms (Griffin, 1981; Solomons, 1977). Dunbar and O’Sullivan (1986), for example, reported that interactions between teachers and students in coeducational elementary physical education classes were inequitable and favored boys. Compared with girls, boys were asked questions more often and received more positive and corrective feedback from their teacher.

Although the pattern of differential treatment of male and female students is fairly consistent, some scholars have attributed the greater number of teacher interactions directed toward male students to the fact that male students initiated interactions with their teachers more often (Altermatt, Jovanovic, & Perry, 1998). There is some support for this notion because the study by Drudy and Úi Chatháin (2002), for instance, reported that boys tended to initiate more interactions with their teachers across a variety of subjects (e.g., language, math, science, humanities). Other studies, however, have not necessarily found that teachers interact more frequently with boys as a result of male students having initiated more frequent direct verbal interactions with teachers (Duffy et al., 2001). Thus, in exploring the differential treatment of boys and girls in classrooms, future research should at least consider the possible effect of the student initiating communication with the teacher.

**Effect of Teacher’s Feedback**

Understanding the differential treatment of boys and girls in physical education has important consequences in that these experiences are likely to influence student outcomes. As noted, the research (Dart & Clarke, 1988) suggests that boys have a typically disproportionate share of contributions in whole class interaction, not only as a result of the fact that they are selected by the teacher more frequently than girls but also because of their ability to create conditions (positive and negative) that attract teachers’ attention and that facilitate their participation and dominant position in classroom interaction. Girls have lower expectations for themselves in classrooms in which they are treated in a qualitatively different manner from boys (Eccles & Blumenfeld, 1985). In physical sciences, for instance, Jones and Wheatley (1990) reported that boys demand and get more of the teacher’s attention. This conversationally focal position of the boys provides them with an important learning experience, as well as the confidence of being listened to, and stimulates...
them to participate more (Howe, 1997). Thereby girls might be unintentionally pushed out of the center of the action, learning to expect a lower participation level than boys.

Over the years many researchers have attempted to identify processes that might influence gender differences in performance and achievement (Eisenberg, Martin, & Fabes, 1996), and beliefs about the self have become a dominant theme. The issue becomes more complicated as we learn more about feelings of competence and the development of competency beliefs, with gender arising as one variable that seems to make a difference.

Although the evidence reviewed above clearly indicates that teachers treat male and female students differently, most of this information comes from observational studies. Less is known, however, about how students perceive their teachers’ communications and whether boys and girls think their instructors provide different types and amounts of feedback. No attempt has been made to incorporate data from the students’ perspective regarding perceived differential teacher treatment in physical education classes (McBride, 1990), and, as noted, most social cognitive models describing the influence of significant others argue that the effects of feedback are dependent on how the one receiving the information perceives the feedback, not on what is actually said from an objective standpoint (Harter, 1998; Roberts, 2001). Thus, examining how students perceive their teachers’ behavior is of critical importance and is therefore one of the primary aims of this study.

**The Present Study**

The main purpose of this study was to investigate students’ perceptions of teacher feedback in physical education classes. Specifically, the study examined whether gender differences appeared relative to teacher feedback because many observational studies indicate that boys seem to be advantaged over girls in interactions with teachers. It was expected that students’ perceptions of teachers’ feedback would be clearly gender differentiated. Boys should perceive that they receive more frequent feedback, such as praise, criticism, technical information, and encouragement, and they are likely to believe that they have initiated more communication with teachers compared with girls. The second purpose of the study is to see whether boys’ and girls’ perceptions of feedback were linked with their perceived physical competence. It was expected that teachers’ perceived feedback would be related to students’ self-perceptions of competence, with praise, encouragement, and informational feedback showing a positive relationship with the students’ perceptions of ability, whereas criticism and a lack of performance feedback were expected to show a negative relationship. No *a priori* hypothesis was made concerning gender differences in these relationships.

**Method**

**Participants and Setting**

A sample of 450 eighth-, ninth-, and tenth-grade students (200 boys and 250 girls) with a mean age of 16 years ($SD = 0.85$) participated in the study. The students were recruited from three different high schools from two French cities, each with
a population of 15,000 to 30,000. The sample consisted primarily of Caucasian French middle- to upper-class families.

Questionnaires were administered at the end of the school year in 15 classrooms. The classes were taught by a total of 12 physical education teachers (six men and six women). The questionnaire took approximately 10–15 minutes to complete. The teachers were asked to leave the area while the students answered the questions. Students were assured that their answers would remain confidential and their teacher would not see their answers. The researcher answered any questions from the students and collected the surveys once they had been completed.

Permission to conduct the study was obtained from the university Institutional Review Board, the school administration, and the teachers before the start of the study. Students and their parents provided written informed consent before students participated in the study.

**Measures**

*Perceived Teacher Feedback.* Although several questionnaires have been developed for studying dimensions of the physical education learning environment or climate (e.g., Papaioannou, 1994), a number of unanswered questions remain. Most relevant to this study, the research conducted so far has not adequately dealt with students’ perceptions of performance-related feedback provided by teachers. Given the lack of available measures, we decided to adopt an existing version of a reliable and valid scale used to assess perceived coaching feedback. Specifically, we modified the Coaching Feedback Questionnaire (CFQ; Allen & Howe, 1998; Amorose & Horn, 2000). The CFQ, which is based on the original CBAS (Smith et al., 1977), asked respondents to indicate how frequently their high school or college coach responded to their performance attempts with one of 10 specific types of feedback. Four of the categories represent behavioral responses to athletes’ good performances or efforts (praise only, praise combined with information, non-verbal praise, and no response). The other six categories represent behavioral responses to poor performances or errors (encouragement only, corrective information, no response, criticism, nonverbal criticism, and criticism with corrective information).

Each of these possible responses is directly relevant in a physical education teaching setting, and therefore, in our versions of the scale, we modified the instruction set to ask the students how frequently they perceived their teachers responding in the ways just mentioned. Example items from each of the categories used in our modified version of the CFQ, which we labeled the Perceived Teacher Feedback Questionnaire (PTFQ), are presented in Table 1.

Given that the PTFQ was newly developed for the current study, we conducted a pilot study to determine whether the assessment was reasonable to use in a physical education setting. The frequency and types of feedback provided by two physical education teachers during 10 different physical education lessons were recorded. Based on these observations, our analysis indicated that the feedback categories identified in the PTFQ were commonly used by the teachers, thus providing some initial support for the validity of the scale.

Beyond the 10 feedback categories that were based on the CFQ, we also included some items on the PTFQ to determine the degree to which the students
Table 1  Items of the Perceived Teacher Feedback Questionnaire (PTFQ)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Items</th>
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</thead>
<tbody>
<tr>
<td>How often does your physical education teacher respond to your good performance with...?</td>
<td></td>
</tr>
<tr>
<td>Praise</td>
<td>“Nice move. Excellent!”</td>
</tr>
<tr>
<td>Praise + information</td>
<td>“Well done! You put the ball into good space for her to move onto.”</td>
</tr>
<tr>
<td>Nonverbal praise</td>
<td>Teacher smiles, claps enthusiastically, pats you on the back.</td>
</tr>
<tr>
<td>No response</td>
<td>Teacher doesn’t say anything about your good practice or effort.</td>
</tr>
<tr>
<td>Student-initiated communication—success</td>
<td>You often show your success to the teacher.</td>
</tr>
<tr>
<td>How often does your physical education teacher respond to your poor performance or mistake with...?</td>
<td></td>
</tr>
<tr>
<td>Encouragement</td>
<td>“Hang in there! Better luck next time.”</td>
</tr>
<tr>
<td>Technical/corrective information</td>
<td>“Stay goal-side of your check.”</td>
</tr>
<tr>
<td>Criticism</td>
<td>“That was a bad pass!”</td>
</tr>
<tr>
<td>Criticism + corrective information</td>
<td>“I told you to stay near her/him! Next time call the ball in a same move!”</td>
</tr>
<tr>
<td>Nonverbal criticism</td>
<td>Teacher rolls her/his eyes or looks to the sky, shakes his/her head, or looks away, looks angry.</td>
</tr>
<tr>
<td>No response</td>
<td>Teacher ignores your mistakes.</td>
</tr>
<tr>
<td>Student-initiated communication—unsuccessful</td>
<td>You often ask for help from your teacher to correct a mistake.</td>
</tr>
</tbody>
</table>

Note. Items were scored on a 7-point Likert scale, with higher scores reflecting more frequent behavior.
Table 2  Factor Structure of the Perceived Teacher Feedback Questionnaire (PTFQ)

<table>
<thead>
<tr>
<th>Items</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>5</th>
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<td>Praise 1</td>
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<td></td>
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<tr>
<td>Praise 2</td>
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<td>.73</td>
<td></td>
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<tr>
<td>Praise 3</td>
<td></td>
<td>.74</td>
<td></td>
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<tr>
<td>Praise 4</td>
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<td>.77</td>
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<tr>
<td>Nonverbal praise 1</td>
<td></td>
<td>.58</td>
<td></td>
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<tr>
<td>Nonverbal praise 2</td>
<td></td>
<td>.50</td>
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<tr>
<td>Nonverbal praise 3</td>
<td></td>
<td>.58</td>
<td></td>
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<tr>
<td>Praise + corrective information 1</td>
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<td>.50</td>
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<tr>
<td>Praise + corrective information 2</td>
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<tr>
<td>Praise + corrective information 3</td>
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<td>No response 1</td>
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<td>.68</td>
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<tr>
<td>No response 2</td>
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<td></td>
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<tr>
<td>No response 3</td>
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<td></td>
<td>.71</td>
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<tr>
<td>Student-initiated communication 1</td>
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<td>.80</td>
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<td>Student-initiated communication 2</td>
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<td>.67</td>
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<tr>
<td>Student-initiated communication 3</td>
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<td>.71</td>
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</tbody>
</table>

(continued)
**Table 2 (continued)**

<table>
<thead>
<tr>
<th>Response to poor performance/mistake</th>
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<tbody>
<tr>
<td>Technical/corrective information 1</td>
<td>.66</td>
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<tr>
<td>Technical/corrective information 2</td>
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<td>Technical/corrective information 3</td>
<td>.73</td>
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<tr>
<td>Technical/corrective information 4</td>
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<tr>
<td>Encouragement 1</td>
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<td>Encouragement 2</td>
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<td>Encouragement 3</td>
<td>.48</td>
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<td>.59</td>
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<tr>
<td>Criticism 1</td>
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<td>Criticism 2</td>
<td>.76</td>
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<td>Criticism 3</td>
<td>.59</td>
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<tr>
<td>Criticism 4</td>
<td>.60</td>
</tr>
<tr>
<td>Criticism + corrective information 1</td>
<td>.48</td>
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<tr>
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<td>.45</td>
</tr>
<tr>
<td>Criticism + corrective information 3</td>
<td>.66</td>
</tr>
<tr>
<td>Nonverbal criticism 1</td>
<td>.59</td>
</tr>
<tr>
<td>Nonverbal criticism 2</td>
<td>.57</td>
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<tr>
<td>Nonverbal criticism 3</td>
<td>.57</td>
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<tr>
<td>Nonverbal criticism 4</td>
<td>.42</td>
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<tr>
<td>No response 1</td>
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<td>No response 2</td>
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<td>.81</td>
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<td>Student-initiated communication 2</td>
<td>.85</td>
</tr>
<tr>
<td>Student-initiated communication 3</td>
<td>.82</td>
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</tbody>
</table>

Cronbach’s α: .87 .71 .76 .79 .76 .80 .60 .88
Eigenvalue: 5.15 2.11 2.09 3.53 1.89 3.91 1.90 2.63
Percent variance explained: .13 .05 .05 .10 .06 .10 .05 .06

*Note.* Factor loading below .40 were eliminated for simplicity.
each of the 43 items was rated on a 7-point Likert scale from (1) never to (7) always, reflecting the perceived frequency of teacher feedback.  

Self-Perceptions of Competence. Harter’s (1985) self-perception of competence measure was modified for the physical education context to assess the students’ perceptions of competence. Specifically, the items asked about students’ perceptions of ability in school physical education class, ability to learn sport skills in physical education, and confidence in the physical education environment. The specific items included: a) How good do you think you are in physical education? (not good at all to very good); b) Are you satisfied with your performances in physical education? (not at all to very much); c) How skilled do you think you are compared with your class friends? (not good at all to very good); and d) Are you self-confident in physical education? (not at all to very much). Responses were scored on a 7-point scale, with higher scores reflecting a higher perception of competence. The responses from the four items were averaged, and the mean score was used as an indicator of the girls’ and boys’ self-perceptions of competence. These items possessed strong face validity and demonstrated acceptable levels of reliability in the current study, with an alpha coefficient of .89.

Background Information. Each participant was asked to complete demographic questions assessing their gender, age, and practice outside of school. Practice outside of school was determined by asking students to indicate whether he or she practiced more than just during physical education lessons. Specifically, students were to respond yes or no to the question, “Do you practice sport outside, in addition to physical education hours?”

Physical Education Performance. To obtain an indicator of the students’ ability, we had the physical education teachers rate each of the students. These evaluations were represented by a score (0 to 20 points). The teacher based her or his evaluation on physical performance and student engagement. Specifically, the teacher’s evaluation consisted of test performances, as well as their judgment of each student’s participation during physical education classes. Although we acknowledged the potential biases involved in teacher ratings of performance, Trouilloud, Sarrazin, Martinek, and Guillet (2002) found a correlation of .65 between the student’s physical tests and the final evaluation by their physical education teacher. Thus, we believe that the teacher’s assessment of the students is a reasonable indicator of the students’ actual performance.

The variables reflecting practice outside of school and physical education performance were assessed because they are likely to affect the student’s perceptions of competence. Therefore, we wanted to account for these variables when attempting to predict the students’ perceptions of competence from their perceptions of their teachers’ feedback.

Data Analysis

Before testing the main research questions, a principal component analysis was conducted on the PTFQ scale to provide factorial validity evidence for the newly created measure. Descriptive statistics, alpha coefficients, and correlations among all study variables were then examined. All variables were standardized
within physical education classes. After these preliminary analyses, we tested the main study purposes. First, potential gender differences were explored using a MANOVA. Next, a series of hierarchical multiple regression analyses were conducted to examine the influence of perceived teacher feedback on male and female student’s perceptions of competence.

Results

Preliminary Analyses

A principal component analysis was conducted to establish initial factorial validity for PTFQ. The number of factors that constitute a solution for PTFQ was based on several criteria. Consideration included the number of eigenvalues that exceed 1.0, the percentage of variance accounted for by the factors, inspection of the screen plot to determine when the eigenvalues begin to level off, and the cohesiveness of the items within identified factors. After the number of factors had been established, a direct oblimin rotation was used to simplify interpretation of the factors. Factor loadings of at least .40 were considered to be significant to include the items in a factor or subscale (Stevens, 1986). The final solution was an eight-factor structure including 43 of the original items (see Table 2).

Factor 1, labeled Praise, was composed of 10 items representing the teacher’s feedback after a successful performance. The items reflected positive information from the teacher—either verbal or nonverbal and with or without technical instruction. Factor 2 represented failures to respond to a good performance and, therefore, was labeled No Response–Success (three items). Factor 3 represented students’ attempts to initiate communication with their teacher after a successful performance attempt. This factor was labeled Student-Initiated Communication—Success. Factor 4 represented feedback presenting technical information describing how to correct a mistake. This factor, which contained four items, was labeled Technical/Corrective Information. Factor 5 represents four items reflective of encouragement after a poor performance. Factor 6 included 11 items that represented a negative response to a performance error or mistake. These items included both verbal and nonverbal feedback, as well as items with or without technical/corrective information. Consequently, this factor was labeled Criticism. Factors 7 and 8 were also composed of items reflective of unsuccessful performance attempts. Factor 7 included three items representing no response on the part of the teacher, and thus was labeled No Response—Unsuccessful. Factor 8, on the other hand, represented three items in which the focus was on the student asking for help from their teacher. This factor was labeled Student-Initiated Communication-Unsuccessful.

All of the factors demonstrated an acceptable level of internal consistency (see Table 2) based on Cronbach’s alpha coefficient (Cronbach, 1951), with the exception of Factor 7: No Response—Unsuccessful ($\alpha = .60$). This factor was, therefore, dropped from all other analyses.

Descriptive Statistics

Means, standard deviations, and correlations among all the variables of the study are presented in Table 3. In order to determine the relationships among perceived teacher feedback, physical competence, and gender, Pearson’s product
Table 3 Descriptive Statistics and Correlations Among Study Variables ($N = 430$)

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
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<td></td>
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</tr>
<tr>
<td>2. Perceived competence</td>
<td>-.35</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Physical education performance</td>
<td>-.24</td>
<td>.39</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Praise</td>
<td>.02</td>
<td>.29</td>
<td>.07</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. No response — success</td>
<td>-.11</td>
<td>-.10</td>
<td>.02</td>
<td>-.57</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Student-initiated communication — success</td>
<td>.11</td>
<td>.10</td>
<td>-.05</td>
<td>.26</td>
<td>-.19</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Technical/corrective information</td>
<td>.23</td>
<td>-.06</td>
<td>-.15</td>
<td>.41</td>
<td>-.37</td>
<td>.16</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Encouragement</td>
<td>.24</td>
<td>-.04</td>
<td>-.10</td>
<td>.53</td>
<td>-.41</td>
<td>.26</td>
<td>.66</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Criticism</td>
<td>-.14</td>
<td>-.11</td>
<td>-.18</td>
<td>-.03</td>
<td>.17</td>
<td>.07</td>
<td>.00</td>
<td>.04</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>10. Student-initiated communication — unsuccessful</td>
<td>0.13</td>
<td>.07</td>
<td>-.09</td>
<td>.28</td>
<td>-.23</td>
<td>.52</td>
<td>.28</td>
<td>.36</td>
<td>.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**M**
- 4.03 13.15 3.29 3.20 2.33 4.41 3.78 3.01 2.70

**SD**
- 1.37 3.01 1.19 1.40 1.48 1.23 1.29 .97 1.58

*Note.* Gender (male = 1, female = 2); all correlations > |.10| are significant at $p < .05$. 
moment correlation was used. Examination of the correlations suggested that multi-collinearity \( (r \geq .70) \) was not an issue (Tabachnick & Fidell, 1996).

**Main Analyses**

**Purpose 1: Gender Differences.** The first purpose was to determine whether gender differences existed concerning the perceptions of teachers’ feedback. A MANOVA indicated that there were significant gender differences in the set of feedback variables: Wilk’s lambda = .89, \( F(8,440) = 6.74, p < .001 \). As seen in Table 4, significant effects were followed by appropriate univariate post-hoc comparisons. Effect sizes were calculated to determine the meaningfulness or strength of the differences that emerged. Consistent with the recommendations of Thomas, Salazar, and Landers (1991), effect sizes less than .41 were considered small in magnitude, those between .41 and .70 were considered medium, and those greater than .70 were considered large. Significantly different gender differences were found for No Response–Success, Student-Initiated Communication–Success, Student-Initiated Communication–Unsuccessful, Technical/Corrective Information, Encouragement, and Criticism. Specifically, female students perceived a higher frequency of corrective information and encouragement after errors, as well as indicating they were more likely to initiate communication with their teachers after successes and failures. Conversely, female students reported a lower frequency of criticism and indicated their teachers were less likely to ignore them after errors. There were also significant gender differences in terms of perceived competence and physical education performance (see Table 4). Specifically, girls reported lower perceptions of competence and were rated as performing lower in class by their teachers.

**Purpose 2: Predicting Perceptions of Competence.** Separate hierarchical regression analyses predicting perceptions of competence were conducted for male and female students. We attempted to control for the effects of age, physical education performance, and practice by entering these variables on Step 1 of the hierarchical regressions. We then added the set of perceived feedback variables on step two. In both analyses, the set of variables significantly predicted the students’ perceptions of competence—girls: \( F(7, 232) = 10.25, p < .01 \); boys, \( F(7, 181) = 6.89, p < .01 \)—although the addition of the teacher feedback categories did not contribute above and beyond the effect of age, physical education performance, and practice for both groups. A summary of the results is presented in Table 5.

For girls, results revealed that physical education initial performance \( (\beta = .30) \) and practice outside of school \( (\beta = .18) \) significantly predicted their self-perception of competence, \( F(3, 235) = 8.74, p < .01, R^2 = .13 \). The inclusion of the perceived teachers’ feedback on Step 2, however, explained an additional 18% of the variance. Praise \( (\beta = .33) \) and criticism \( (\beta = -.17) \) were each significant predictors of perceived competence. Based on squared semipartial correlations, the amount of unique variance in the girls’ perceived physical competence explained by praise was 10% \( (sr^2 = .10) \) and by criticism was 5% \( (sr^2 = .05) \). These findings indicate that female students’ perceptions of competence were higher for those who perceived that their teachers provided them with more frequent praise and less frequent criticism. Further, higher perceptions of competence were associated with practicing outside of physical education class and the teacher’s rating of the student’s physical education performance.
Table 4  Follow-Up Univariate Analyses of Variance, Means, and Standard Deviations for Study Variables by Gender

<table>
<thead>
<tr>
<th>Variables</th>
<th>Principal effects: gender</th>
<th>Males</th>
<th>Females</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher's feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Praise</td>
<td></td>
<td>0.26</td>
<td>3.31</td>
<td>3.26</td>
</tr>
<tr>
<td>No response</td>
<td></td>
<td>5.45*</td>
<td>3.32</td>
<td>3.11</td>
</tr>
<tr>
<td>Student-initiated communication–success</td>
<td></td>
<td>5.47*</td>
<td>2.24</td>
<td>2.40</td>
</tr>
<tr>
<td>Technical/corrective information</td>
<td></td>
<td>31.01***</td>
<td>4.05</td>
<td>4.69</td>
</tr>
<tr>
<td>Encouragement</td>
<td></td>
<td>24.10***</td>
<td>3.66</td>
<td>3.87</td>
</tr>
<tr>
<td>Criticism</td>
<td></td>
<td>8.9**</td>
<td>3.11</td>
<td>2.92</td>
</tr>
<tr>
<td>Student-initiated communication–unsuccess</td>
<td></td>
<td>7.1**</td>
<td>2.53</td>
<td>2.83</td>
</tr>
<tr>
<td>Other variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived physical competence</td>
<td></td>
<td>66.61***</td>
<td>4.60</td>
<td>3.58</td>
</tr>
<tr>
<td>Physical education performance</td>
<td></td>
<td>16.84***</td>
<td>14.20</td>
<td>12.40</td>
</tr>
</tbody>
</table>
Table 5  Summary of Results from the Hierarchical Regression Analysis Predicting Perceptions of Competence

<table>
<thead>
<tr>
<th>Variable</th>
<th>Females ($n = 232$)</th>
<th>Males ($n = 181$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Step 1</td>
<td>.13</td>
<td>.22</td>
</tr>
<tr>
<td>Age</td>
<td>.05</td>
<td>.57</td>
</tr>
<tr>
<td>Physical education performance</td>
<td>.30</td>
<td>.00</td>
</tr>
<tr>
<td>Practice</td>
<td>.18</td>
<td>.06</td>
</tr>
<tr>
<td>Step 2</td>
<td>.31</td>
<td>.27</td>
</tr>
<tr>
<td>Praise</td>
<td>.33</td>
<td>.00</td>
</tr>
<tr>
<td>Student-initiated communication–success</td>
<td>.06</td>
<td>.43</td>
</tr>
<tr>
<td>Technical/corrective information</td>
<td>−.25</td>
<td>.14</td>
</tr>
<tr>
<td>Encouragement</td>
<td>.08</td>
<td>.67</td>
</tr>
<tr>
<td>Criticism</td>
<td>−.17</td>
<td>.02</td>
</tr>
<tr>
<td>Student-initiated communication–unsuccessful</td>
<td>.12</td>
<td>.12</td>
</tr>
</tbody>
</table>


For boys, results revealed that age ($\beta = .24$), physical education performance ($\beta = .30$), and practice ($\beta = .27$) were significantly linked with self-perceptions of competence, $F(3, 184) = 10.3, p < .01, R^2 = .22$. The change in $R^2$ with the addition of the teacher feedback ratings on Step 2, however, was nonsignificant. In other words, the teachers’ feedback was not significantly associated with boys’ perceived competence after controlling for age, practice, and physical education performance. Results did indicate that older boys who practiced outside of class and were rated as performing better in physical education class by their teacher tended to report higher perceptions of competence.

**Discussion**

There were two main goals in this study: 1) investigate possible gender differences in students’ perceptions of feedback provided by teachers, and 2) examine whether perceived feedback from teachers affected students’ perceived competence.

**Purpose 1: Gender Differences**

With regard to the first purpose of this study, the goal was to see whether boys and girls expressed differences in the way they perceived their teachers responded to them in class. Based on the previous observational research (e.g., Dunbar & O’Sullivan, 1986), we expected that boys would receive a higher frequency of all forms of feedback from their teachers. Interestingly, our results did not provide strong support for this prediction. Results of this study showed no significant gender differences concerning perceived teacher praise. Further, girls perceived receiving more encouragement and technical information. The only findings consistent with our expectations were that girls reported less criticism and lack of responses from their teachers than boys.

Only one study (McBride, 1990) has examined perceived teacher feedback, and results showed little evidence of gender typing in the physical education setting. These results are unlike most observational studies, such as Dunbar and O’Sullivan (1986), who reported that boys received more positive feedback than girls. Concerning technical information and encouragement, girls felt as if they were more supported by their physical education teacher than boys did. These last two variables, however, were not correlated with perceived physical competence. These results disconfirmed our hypothesis that boys would be more favored with praise, technical information, and encouragement than girls. Another result, however, showed that boys perceived receiving significantly more criticism than girls. This result corroborated findings of observational studies, but as Drudy and Úi Chatháin (2002) specified, criticism tends to represent the lowest proportion of all student–teacher interactions. Moreover, the teacher’s perceived criticism did not link or affect boys’ perceptions of physical competence.

Gender differences are often found on expectancy measures particularly for activities stereotyped by gender role such as sport (Eccles & Harold, 1991). Unfortunately, gender-role stereotypes are not value free. Extensive evidence indicates that women are stereotyped as less physically competent than men. Girls remain largely passive and invisible in class, particularly in physical education (Stanworth,
1983). In the physical sciences, Jones and Wheatley (1990) showed that boys demand and get more of the teacher’s attention. Because boys create conditions (positive and negative) to attract teachers’ attention, they gain an important learning experience, as well as the confidence of being listened to, thus stimulating them to participate more (Howe, 1997). But our results were contrary to this prediction. Perhaps girls were more indulgent, or they learned to be satisfied with the teacher’s investment in physical education because they are less attracted by sport and they have internalized the gender-role stereotype (Eccles & Harold, 1991). Moreover, boys place more importance on demonstrating their physical competence in school than girls.

Finally, it was expected that boys should initiate more interactions (e.g., ask questions or show their success) with their teachers than girls. On the contrary, girls said they initiated teacher communication more often. They often asked for help from their teachers to correct mistakes, and they called him or her to show their good performance. These results are not entirely consistent with previous studies such as Altermatt et al. (1998), who have suggested that male students initiate more interactions than girls. But Duffy et al. (2001) showed there was no significant difference in the number of interactions initiated by male versus female students in mathematics and literature classes.

Based on these results, there appears to be some inconsistencies in the pattern of results depending on whether observational methods are used to code teacher feedback (e.g., Dunbar & O’Sullivan, 1986) versus asking the students about their perceptions of teacher feedback patterns (e.g., McBride, 1990). Consequently, future research should attempt to explore these patterns more closely using a combination of data collection techniques.

Similarly, it is suggested that future studies explore other reasons for the unexpected finding that girls tended to perceive more frequent interactions with their teachers. For instance, the current study was conducted in French schools, whereas the majority of the previous research has been conducted in North America. Perhaps there are cultural differences in how teachers treat boys versus girls in physical education classes around the world. Furthermore, we might consider the changing beliefs regarding the acceptability of female participation in sport and physical activity. With increasing participation and acceptance of girls in these activities, we might expect to see teachers treating boys and girls in a more equal fashion rather than adhering to the typical gender stereotypes in which sport and physical activity is only appropriate for boys. In other words, providing feedback such as praise, encouragement, and technical instruction to girls might seem more reasonable to teachers because their female students demonstrate increasing interest and competence in sport and physical activity.

Finally, we need to consider a host of factors that might influence how students perceive teachers’ feedback. Scholars examining coaching feedback patterns have identified a host of personal and situational factors that might influence the way in which an individual perceives and interprets the behaviors and feedback patterns of their coaches (see Horn, 2002). For instance, an individual’s current perceptions of ability or achievement goal orientation might lead him or her to interpret what their teachers say in different ways (Vallerand & Ratelle, 2002). Similarly, the gender of the feedback provider, in this case the teacher, might have an effect on
both actual and perceived feedback. Studies have found, for example, that male teachers interact more frequently with female students, whereas the opposite is true for female teachers (e.g., Davis, 2000; Weiller & Doyle, 2000). Given our limited sample of teachers, we were not able to adequately test for this, yet the gender of the teacher might be an important moderating factor. Further, it has been suggested that feedback received from an opposite sex provider might influence how the recipient perceives and interprets the information (Amorose & Weiss, 1998). Whereas these factors might help to explain the inconsistencies in our findings, future research is needed to specifically test how gender is related to feedback patterns in physical education classes.

**Purpose 2: Predicting Perceptions of Competence**

The second purpose of this study was to determine whether perceived feedback was related to girls’ and boys’ perceived physical competence. It was expected that teachers’ perceived feedback would be related to students’ self-perceptions of competence. However, no *a priori* hypothesis was made concerning the gender-differentiated relationships for these variables. Results of the regression analyses indicated that girls seemed to be more influenced by teacher feedback than boys. Indeed, perceived feedback explained 18% of variance above and beyond that accounted for by age, practice, and performance in class. That is, girls seem more sensitive to teachers’ communications than boys, and girls use this feedback as a salient source of competence information (Horn, Glenn, & Wentzell, 1993). Based on these perceptions of teacher feedback, we could say that higher frequencies of praise after performance successes and less criticism after mistakes were associated with higher self-perception of competence in female physical education students. Silverman, Tyson, and Krampitz (1992) found that positive feedback is related to high achievement. They argue that positive feedback motivates students to continue to practice, permitting a greater number of total appropriate practice trials. This was interesting given that the girls perceived receiving an equal amount of praise compared with boys, and they perceived receiving less criticism. Based on these results, positive discrimination in favor of girls could be envisaged to improve girls’ self-perceptions in physical education. Interventions are needed that raise girls’ confidence in their ability to do well in sport activities and in physical education classes.

Contrary to expectations, teacher feedback was not related to boys’ perceptions of physical competence. The relatively weak influence of perceived teacher feedback might be a result of the use of other sources of information for judging their physical competence. Lee et al. (1993) said that in some situations, movement skills can be learned without any teacher feedback at all. External feedback can be essential for some, whereas others prefer to use internal feedback. For instance, boys might use more peer feedback and comparisons or other sources of competence information rather than their teachers’ feedback. Research on sources of competence information provides some support for this in that boys tend to place less importance on significant others as cues of ability compared with girls (Horn & Amorose, 1998).
Implications and Conclusions

Based on the results of this study, we can propose some implications for teacher education programs. For example, teachers need to be aware of engaging in gender-differentiated behaviors in their classrooms. Most gender equality projects propose to develop critical self-awareness of teachers through a process of self-observation of their own classroom interaction patterns. In other words, teachers should try to become aware of how they interact with each of their students in different situations. Although it will be difficult for teachers to control how students perceive their behaviors, trying to provide effective feedback (e.g., high frequencies of positive and informational feedback) to all students, whether male or female, should lead to higher levels of achievement and promote more positive classroom experiences for everyone.

Although special attention was given to the methodology used in this study, some limitations have to be acknowledged. For instance, the cross-sectional nature of the data necessitates caution when interpreting the direction of the relationship between teacher’s feedback and students’ physical competence. Only experimental studies can provide a strong inference of causality because such designs control for situational variables. Further, given the recent development of the PTFQ, the questionnaire used in this study, additional testing of the scale’s psychometric properties is warranted. Even though establishing the reliability and validity of any measure is an ongoing process, the results of the current investigation provide some encouraging results. Nevertheless, until further support for the measure is provided, our findings should be taken with some caution.

In conclusion, little attention has been paid to students’ perspectives regarding perceived differential teacher treatment. Our findings differ from previous studies because most of them were based on observations of classroom interaction patterns. Recognizing the importance of student thoughts, researchers have just begun exploring student cognitions during physical education lessons (Martinek, 1988), and our study is one of the only ones we are aware of that specifically explores gender differences in perceived feedback. Despite a range of provisional findings (see review, Coffey & Delamont, 2000), the research evidence on teacher–pupil interactions is not as robust as it might be or as it is often assumed to be. Moreover, the implications of such findings are not completely clear. Bossert (1982) summarized the results of a number of American studies and concluded: “These results leave us in a muddle. Teachers do treat girls and boys differently, but the extensiveness of this differential treatment, whether it is perceived by students, and how it might affect their sex role behavior and attitudes is unknown” (p. 173). Instruction in equity issues is almost nonexistent in the teacher’s training curricula in many countries (Bullock, 1997), yet seems critical given the potential effects on students.

References

Perceptions of Teacher Feedback


**Notes**

1In France, physical education classes are compulsory and typically coeducational. Coeducational classes in and of themselves, however, do not necessarily ensure equal treatment of boys and girls. The French physical education profession itself has been largely silent on issues of gender equality. In today’s modern society, it might be expected that male and female students would receive equal attention in school, yet solid evidence of this is lacking.

2The complete version of the PTFQ is available from the first author.

3There were missing data because a few students weren’t evaluated by their teachers. These subjects (n = 20) were deleted from all analyses.

4Effect sizes were calculated using the following equation from Thomas, Salazar, and Landers (1991): \( M_1 - M_2 / SD_{pooled} \). In this equation \( M_1 \) and \( M_2 \) represent the means of two comparison groups (e.g., males vs. females) and the \( SD_{pooled} \) represents the pooled standard deviation between the two groups.